What is claimed is:

1.   A program filter using a plurality of carrying streams output from a plurality of demodulating circuits to filter the carrying streams, and output filtered results,

5   wherein the filtered results are temporarily stored in a storing circuit configured by a single memory space.

2.   The program filter as claimed in claim 1, wherein the filtering processing and the storing processing of the filtered

10   results in the storing circuit are performed in packets of the carrying streams.

3.   A program filter using a plurality of carrying streams output from a plurality of demodulating circuits as inputs to filter the

15   carrying streams, divide the data obtained as a result of filtering the streams into packets again, and output the packets as carrying streams, comprising:

        a storing circuit for temporarily storing a header of a packet among packets configuring an input carrying stream or a

20   parameter included in the header when filtering the carrying streams; and

        a packet re-diving circuit for dividing the data obtained as a result of filtering into a plurality of packets again and thereafter generating a carrying stream in which the divided

25   packets are combined with the header of a header re-constituted

in accordance with the parameter.

4.   A program filter using a plurality of carrying streams output from a plurality of demodulating circuits as inputs to filter the

5   carrying streams and output filtered results; wherein

table-type information which is the information repeatedly transferred every a certain time interval and stream-type information which is the information whose contents change every moment are distinguished in order to update the information having

10   a predetermined format from the information input as the carrying streams, and when the information which newly arrives is the table-type information, the information is overwritten on the information stored in a storing circuit and when the information which newly arrives is the stream-type information, the

15   information is stored in a storing area different from the information already stored in the storing circuit.

5.   A program filter using a plurality of carrying streams output from a plurality of demodulating circuits to filter the carrying

20   streams and output filtered results, wherein

a program information table, a parameter setting circuit for setting a parameter of a packet to be filtered in accordance with the information stored in the program information table, and an updating circuit for filtering a packet input in accordance with

25   the set parameter, referring the packet passing through the filter,

and updating the program information table are included.

6.   The program filter as claimed in claim 5, wherein

a designated program-discriminating ID is converted into a
corresponding packet ID by referring to the program information

5   table to filter a carrying packet by using the packet ID obtained
as a result of conversion.

7.   The program filter as claimed in claim 5, wherein

when it is judged that as a result of referring to the program

10   information table, the information requested by a user cannot be
obtained from the carrying streams which are outputs of the
demodulating circuit, settings of the demodulating circuit are
changed so as to output a carrying stream required by the
demodulating circuit by referring to the program information

15   table.

8.   A program filter inputting a plurality of carrying streams
output from a plurality of demodulating circuits to filter the
carrying streams and outputting filtered results, making it

20   possible to independently set a filtering condition for a certain
carrying stream and a carrying stream to which the filtering
condition should be applied independent of the filtering
condition.

25   9.   A digital-broadcast receiving apparatus comprising a

plurality of demodulating circuits, a program filter for inputting a plurality of carrying streams output from the demodulating circuits, filtering the carrying streams, and outputting filtered results, a memory buffer for storing outputs

5   of the program filter, and a recording/reproducing circuit or a decoder, wherein

the program filter is provided with a packet filter for receiving inputs from the demodulating circuit and extracting only necessary information according to a designation of a user

10   out of the inputs and a memory interface circuit for writing outputs of the packet filter in the memory buffer,

the packet filter is provided with a judging circuit for comparing and judging whether a packet ID of each packet of a carrying stream output from the demodulating circuit matches a

15   previously entered packet ID and a controlling circuit for passing the packet whose packet ID matches the previously entered packet ID as a result of comparison, and

the memory interface circuit writes a packet output from the packet filter in the memory buffer.

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10.   The digital-broadcast receiving apparatus according to claim 9, wherein a data reproducing circuit corresponding to each of the packet filters and using outputs of the packet filters as inputs to reproduce original data in accordance with a payload

25   in each packet of the carrying stream, store a header of each packet

and a parameter in the header into a header storing circuit of the memory buffer, and store the original data in a data storing circuit of the memory buffer, and

5   a packet re-dividing circuit for dividing the data stored in the data storing circuit into payloads again and, reconfiguring a header of each packet in accordance with the header and parameter stored in the header storing circuit, combining generated payloads with the header to generate packets, and successively output generated packets.

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11.   The digital-broadcast receiving apparatus as claimed in claim 9, wherein the memory interface circuit is provided with;

a FIFO-type buffer for absorbing delays due to the processings by the data distributing circuit and the table

15   updating circuit and shifts of output timings of the packet filters,

a data distributing circuit for judging whether outputs of the packet filters are stream-type information or table-type information and, when the outputs are judged to be the stream-type

20   information, transferring the outputs to a stream-type-information storing circuit of the memory buffer and when they are judged to be the table-type information, transferring them to the table updating circuit, and

a table updating circuit for successively overwriting input

25   pieces of information at predetermined positions of a table-

type-information storing circuit.

12. The digital-broadcast receiving apparatus as claimed in claim 9, wherein the memory interface circuit is provided with;

5   a FIFO buffer for absorbing delays due to processings by the data distributing circuit and the table updating circuit and shifts of output timings of the packet filters,

a data distributing circuit for judging whether outputs of the packet filters are stream-type information, table-type

10   information, or combined-table-type information, and when the outputs of the packet filters are judged to be the stream-type information, transferring the outputs of the packet filters to a stream-type-information storing area in the memory buffer and when they are judged to be the table-type information or

15   combined-table-type information, transferring them to a table updating circuit, and

a table updating circuit for, when input information is the table-type information, transferring it to a table-type-information storing circuit in the buffer memory and when the

20   input information is the combined-table-type information, transferring it to a table-type-information designating circuit, and

the table-type-information designating circuit selects table-type information out of input combined-table-type

25   information in accordance with a table designation by a user to

pass the table-type information and transfers the table-type
information to a combined-table-type-information storing
circuit in the memory buffer.

13.   The digital-broadcast receiving apparatus as claimed in

5   claim 9, wherein the memory interface circuit is provided with;

a FIFO buffer for absorbing delays due to processings by the
table updating circuit and packet-ID updating circuit and shifts
of output timings of the packet filters,

a table updating circuit for updating a program related table

10   for storing the information transferred by a packet provided with
a predetermined packet ID in accordance with a packet which
arrives and a program map table for storing a packet ID relating
to a program, and

a packet-ID updating circuit for reading packet IDs of

15   packets for carrying the information of the program map table
stored in the program related table, setting the packet IDs to
the packet filters, and updating a program information table
constituted of the program related table and the program map
table.

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14.   The digital-broadcast receiving apparatus as claimed in
claim 13, wherein

a program map table formatted so that a plurality of program
discriminating IDs and packet IDs relating to the program

25   discriminating IDs are stored and when designating a certain

program discriminating ID, a plurality of packet IDs relating to the program discriminating ID can be retrieved, and a packet-ID retrieving circuit to which a program discriminating ID is input from an external unit to retrieve a packet ID relating to

5   an input program-discriminating ID among packet IDs stored in the program map table and supply a packet ID obtained as a result of retrieval to a packet filter are included, and

the data distributing circuit transfers table-type information relating to the program related table and the program

10   map table to the table updating circuit and outputs program related information relating to a designated program-discriminating ID to a program-related-information storing circuit.

15   15. The digital-broadcast receiving apparatus as claimed in claim 14, wherein

the packet-ID retrieving circuit outputs mismatching detection when an input program discriminating ID is not detected in a program map table, starts a carrying-stream designating

20   circuit,

the carrying-stream designating circuit extracts a carrying-stream ID corresponding to a mismatching-program discriminating ID from an event information table when mismatching detection is input and outputs the carrying-stream

25   ID to the demodulating circuit, and

the demodulating circuit outputs a carrying stream having the carrying-stream ID.

16. The digital-broadcast receiving apparatus as claimed in

5   claim 14, wherein

a storing circuit for storing and holding a filter setting parameter for each of the packet filters and the filter setting parameters of the packet filters are made changeable.

10 17. A digital-broadcast receiving method using a plurality of carrying streams output from a plurality of demodulating circuits as inputs to filter the carrying streams and output filtered results, wherein

the filtered results are temporarily stored in a storing

15 circuit constituted of a single memory space.

18. The digital-broadcast receiving method as claimed in claim 17, wherein

the filtering and the storing of the filtered results in the

20 storing circuit are performed in packets of the carrying streams.

19. A digital-broadcast receiving method using a plurality of carrying streams output from a plurality of demodulating circuits as inputs to filter the carrying streams, divide the data obtained

25 as a result of filtering into packets again, and output the packets

as carrying streams, the method comprising the steps of:

temporarily storing in the storing circuit a header of each packet passing through a filter or a parameter included in the header among packets configuring an input carrying stream when

5   filtering the carrying streams; and

dividing the data obtained as a result of filtering into a plurality of packets again to generate a carrying stream in which the divided packets are combined with the header reconstituted in accordance with the parameter.

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20.   A digital-broadcast receiving method using a plurality of carrying streams output from a plurality of demodulating circuits as inputs to filter the carrying streams and output filtered results, the method comprising the steps of:

15   distinguishing between table-type information which is the information repeatedly transferred at a certain time interval and stream-type information which is the information whose contents change every moment in order to update the information having a predetermined format in accordance with the information input as

20   the carrying stream; and

overwriting the information which newly arrives on the information stored in a storing circuit when the former information is the table-type information and storing the information which newly arrives in a storing area different from

25   the information already stored in the storing circuit when the

former information is the stream-type information.

21. A digital-broadcast receiving method using a plurality of carrying streams output from a plurality of demodulating circuits as inputs to filter the carrying streams and output filtered results, the method comprising the steps of:

setting a parameter of a packet to be filtered in accordance with the information stored in a program information table;

filtering an input packet in accordance with the set parameter; and

referring to a packet passing through the filter and updating the program information table.

22. The digital-broadcast receiving method as claimed in claim 21, wherein

a designated program-discriminating ID is converted into a corresponding packet ID by referring to the program information table and a carrying packet is filtered by using the packet ID obtained as a result of conversion.

23. The digital-broadcast receiving method as claimed in claim 21, wherein

when it is judged that the information requested by a user cannot be obtained from the carrying streams which are outputs of the demodulating circuits as a result of referring to the

program information table, settings of the demodulating circuits

are changed so as to output carrying streams required by the

demodulating circuits by referring to the program information

table.

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24. A digital-broadcast receiving method using a plurality of

carrying streams output from a plurality of demodulating circuits

as inputs to filter the carrying streams and output filtered

results, making it possible to set a filtering condition

10 corresponding to a certain carrying stream and a carrying stream

to which the filtering condition should be applied independent

of said filtering condition.

25. A bitstream representing a result of filtering a plurality

15 of carrying streams, wherein

the filtered results are temporarily stored in a storing

circuit constituted of a single memory space and thereafter

generated.

20 26. The bitstream as claimed in claim 25, wherein

the filtering and the storing of the filtered results in the

storing circuit are performed in packets of the carrying streams.

27. A bitstream using a plurality of carrying streams output from

25 a plurality of demodulating circuits as inputs to filter the

carrying streams and represent a result of dividing the data

obtained as a result of filtering into packets again, the

bitstream produced by the steps of:

temporarily storing a header of each packet passing through

5   a filter among packets configuring an input carrying stream or

a parameter included in the header when filtering the carrying

streams; and

dividing the data obtained as a result of filtering into a

plurality of packets again and thereafter, generating a carrying

10   stream in which the divided packets are combined with the header

or a header reconstituted in accordance with the parameter.

28.   A bitstream using a plurality of carrying streams output from

a plurality of demodulating circuits as inputs to filter the

15   carrying streams and represent a result of filtering, the

bitstream produced by the steps of:

distinguishing between table-type information which is the

information repeatedly transferred at a certain time interval and

stream-type information which is the information whose contents

20   change every moment in order to update the information having a

predetermined format in accordance with the information input as

the carrying stream; and

overwriting the information which newly arrives on the

information stored in a storing circuit when the former

25   information is the table-type information and storing the

information which newly arrives in a storing area different from the information already stored in the storing circuit when the former information is the stream-type information.

5   29.   A bitstream using a plurality of carrying streams output from a plurality of demodulating circuits as inputs to filter the carrying streams and represent a result of filtering, the bitstream produced by the steps of:

setting a parameter of a packet to be filtered in accordance
10   with the information stored in a program information table;

filtering an input packet in accordance with the set parameter; and

referring to a packet passing through the filter and updating the program information table.

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30.   The bitstream as claimed in claim 29, wherein

a designated program-discriminating ID is converted into a corresponding packet ID by referring to the program information table and a carrying packet is filtered by using the packet ID
20   obtained as a result of conversion.

31.   The bitstream as claimed in claim 29, wherein

when it is judged that the information requested by a user cannot be obtained from the carrying streams which are outputs
25   of the demodulating circuits as a result of referring to the

program information table, settings of the demodulating circuits

are changed so as to output carrying streams required by the

demodulating circuits by referring to the program information

table.

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32.   A bitstream using a plurality of carrying streams output

from a plurality of demodulating circuits as inputs to filter the

carrying streams and show a result of filtering, making it

possible to set a filtering condition for a certain carrying

10   stream and a carrying stream to which the filtering condition

should be applied independent of the filtering condition.

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